

W80c4.CJC-66010

SUMMARY - RETROFIT AND PRODUCTION - Redesign, Test, Retrofit Two Units; Acceptance Test Two Units; Environmental Test One Unit; Produce 10 Units

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	31,268	5.69	178,052
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Hourly	69,684	3.32	231,109
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Total Labor	\$ 409,161
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R&D Overhead @ 135%	552,367
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Materials	\$437,974
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Material Burden @ 14.9%	65,258
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Total Materials Including Burden	<u>503,232</u>
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Subtotal	\$1,464,760
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Gen. & Adm. Expense @ 7.8%	<u>114,251</u>
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Total Estimated Cost	\$1,579,012
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<i>1870</i>	<i>157 901</i>
	<i>1,736,913</i>

25 YEAR RE-REVIEW

W80C4.2CJC-66010

Production Only

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	23, 532	5.64	132, 700
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Hourly	62, 402	3.33	207, 588
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Total Labor	\$ 340, 288
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R&D Overhead @ 135%	459, 389
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Materials	\$342, 426
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Material Burden @ 14. 9%	51, 021
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Total Materials Incl. Burden	<u>393, 447</u>
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Subtotal	\$1, 193, 124
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Gen. & Adm. At 7. 8%	<u>93, 064</u>
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Total Estimated Cost	\$1, 286, 187
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1090	128618
	<u>1,414,805</u>

W80C4-ACJC-66010

SUMMARY - Develop, Test, and Produce 250 Flip Chip Amplifiers and
1100 for 10 Production Units

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		-\$-	-\$-
<u>R&D Overhead Pool:</u>			
Salaried	8,037	5.84	46,936
Hourly	22,524	2.93	65,995
Total Labor			\$112,931
R&D Overhead @ 135%			152,457
Materials			\$129,900
Material Burden @ 14.9%			19,355
Total Materials Incl. Burden			<u>149,255</u>
Subtotal			\$414,643
Gen. & Adm. Expense @ 7.8%			<u>32,342</u>
Total Estimated Cost			\$446,985

W80C4-A-1CJC-66010

Design, Test and Set Up (One Time Charge)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	1,132	5.84	6,611
Hourly	1,924	2.93	5,637
Total Labor			\$12,248
R&D Overhead @ 135%			16,534
Materials			\$18,300
Material Burden @ 14.9%			2,727
Total Materials Incl. Burden			<u>21,027</u>
Subtotal			\$49,809
Gen. & Adm. Expense @ 7.8%			<u>3,885</u>
Total Estimated Cost			\$53,694

W80C4-A-2.0CJC-66010

Manufacture 1,350 Flip Chip Amplifiers (10 Production and 2 Retrofit)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	6,905	5.84	40,325
Hourly	20,600	2.93	60,358
			\$100,683
			R&D Overhead @ 135% 135,922
Materials			\$111,600
Materials Burden @ 14.9%			16,628
			Total Materials Incl. Burden <u>128,228</u>
Subtotal			\$364,833
Gen. & Adm. Expense @ 7.8%			<u>28,457</u>
Total Estimated Cost			\$393,290

W80C4-A-2.1CJC-66010

Manufacture 1,100 Flip Chip Amplifiers (10 Production Units)

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried 6,102 5.84 35,636

Hourly 18,320 2.93 53,678

Total Labor \$ 89,314

R&D Overhead @ 135% 120,574

Materials \$88,484

Materials Burde @ 14.9% 13,184

Total Materials Incl. Burden 101,668

Subtotal \$311,556

Gen. & Adm. Expense @ 7.8% 24,301

Total Estimated Cost \$335,857

*How does this
tie in w/*

W80C4-BCJC-66010

Retrofit Two Units (1-B, 1-C, 1-D, 1-E, 1-F, 1-G, 1-H, 1-I, 1-J, 1-K)

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	5, 801	5.87	34, 052
Hourly	3, 078	3.64	11, 204

Total Labor	\$ 45, 256
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R&D Overhead @ 135%	61, 096
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Materials	\$54, 132
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Materials Burden @ 14. 9%	8, 066
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Total Materials Incl. Burden	<u>62, 198</u>
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Subtotal	\$168, 550
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Gen. & Adm. Expense @ 7. 8%	<u>13, 147</u>
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Total Estimated Cost	\$181, 697
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W80C4-CCJC-66010

Fabrication, Assembly, Electrical Test, Optical & Mechanical Assembly

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	9,282	5.37	49,844	
Hourly	37,566	3.47	130,354	
			Total Labor	\$180,198
			R&D Overhead @ 135%	243,267
Materials			\$252,182	
Materials Burden @ 14.9%			37,575	
			Total Materials Incl. Burden	<u>289,757</u>
Subtotal			\$713,222	
Gen. & Adm. Expense @ 7.8%			<u>55,631</u>	
Total Estimated Cost			\$768,853	

W80C4-DCJC-66010

Quality Control and Inspection

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	510	5.20	2,652
Hourly	3,054	3.67	11,208
Total Labor			\$13,860
R&D Overhead @ 135%			<u>18,711</u>
Subtotal			\$32,571
Gen. & Adm. Expense @ 7.8%			<u>2,540</u>
Total Estimated Cost			\$35,111

W80C4-ECJC-66010

Program Management

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	-\$-	-\$-

R&D Overhead Pool:

Salaried	5, 300	5. 87	31, 111
Hourly	1, 008	3. 64	3, 669

Total Labor	\$34, 780
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R&D Overhead @ 135%	<u>46, 953</u>
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Subtotal	\$81, 733
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Gen. & Adm. Expense @ 7. 8%	<u>6, 375</u>
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Total Estimated Cost	\$88, 108
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Boy, is this ever loaded!!

W80C4-FCJC-66010

Special Test Equipment and Tooling

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	553	5.37	2,862
Hourly	1,488	3.47	5,163
Total Labor			\$ 8,025
R&D Overhead @ 135%			10,834
Materials			\$1,760
Material Burden @ 14.9%			262
Total Materials Incl. Burden			<u>2,022</u>
Subtotal			\$20,881
Gen. & Adm. Expense @ 7.8%			<u>1,629</u>
Total Estimated Cost			\$22,510

4-GW80CCJC-66010

Upgrade Drawings and Manuals

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	1,805	5.87	10,595
Hourly	966	3.64	3,516
Total Labor			\$14,111
R&D Overhead @ 135%			<u>19,050</u>
Subtotal			\$33,161
Gen. & Adm. Expense @ 7.8%			<u>2,587</u>
Total Estimated Cost			\$35,748

S-225.CJC-66010

SUMMARY - Redesign, Test, Retrofit Two Units; Acceptance Test Two Units; Environmental Test One Unit; Produce Ten Units

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	28,635	5.63	161,076
Hourly	41,777	2.88	137,791
			\$ 298,867
			403,470
Materials			\$435,602
Material Burden @ 14.9%			64,905
			<u>500,507</u>
Subtotal			\$1,202,844
Gen. & Adm. Expense @ 7.8%			<u>93,822</u>
Total Estimated Cost			\$1,296,666
			<u>129 666</u>
			<u>1,426,332</u>

S-225.CJC-66010

Production Only - 10 Production Units (5-A-2.1, 5-C, 5-D, 5-E, 5-F,
5-G, 5-H, 5-I, 5-J, 5-K)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	23,673	5.58	132,023
Hourly	34,658	2.83	115,477
			\$ 247,500
			R&D Overhead @ 135% 334,125
Materials			\$400,100
Material Burden @ 14.9%			59,615
			Total Materials Incl. Burden <u>459,715</u>
			Subtotal \$1,041,340
			Gen. & Adm. Expense @ 7.8% <u>81,225</u>
			Total Estimated Cost <u>\$1,122,565</u>
			<i>10%</i> <u><i>112,256</i></u>
			<u><i>1,234,821</i></u>

S-225-ACJC-66010

Develop, Test, and Produce 135 Flip Chip Amplifiers and 480 for
10 Production Units

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	7,332	5.84	42,819
Hourly	16,069	2.93	47,082
			\$ 89,901
			R&D Overhead @ 135%
			121,366
Materials			\$91,202
Material Burden @ 14.9%			13,590
			Total Materials Incl. Burden
			<u>104,792</u>
Subtotal			\$316,059
Gen. & Adm. Expense @ 7.8%			<u>24,653</u>
Total Estimated Cost			\$340,712

S-225-A-1CJC-66010

Design, Test, and Set-Up (One Time Charge)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	1, 132	5.84	6, 611
Hourly	1, 924	2.93	5, 637
Total Labor			\$12, 248
R&D Overhead @ 135%			16, 534
Materials			\$18, 300
Material Burden @ 14. 9%			2, 727
Total Materials Incl. Burden			<u>21, 027</u>
Subtotal			\$49, 809
Gen. & Adm. Expense @ 7. 8%			<u>3, 885</u>
Total Estimated Cost			\$53, 694

S-225-A-2.0CjC-66010

Manufacture 615 Flip Chip Amplifiers (10 Production and 2 retrofit)

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	6,200	5.84	36,208
Hourly	14,145	2.93	41,445
			<u>\$ 77,653</u>
			R&D Overhead @ 135% <u>104,832</u>
Materials			<u>\$72,902</u>
Material Burden @ 14. 9%			10,862
			<u>Total Materials Incl. Burden <u>83,764</u></u>
Subtotal			<u>\$266,249</u>
Gen. & Adm. Expense @ 7. 8%			<u>20,767</u>
Total Estimated Cost			<u>\$287,016</u>

S-225-A-2.1CJC-66010

Manufacture 480 Flip Chip Amplifiers - 10 Production Units

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	4,860	5.84	28,382	
Hourly	11,000	2.93	32,230	
			Total Labor	\$60,612
			R&D Overhead @ 135%	81,826

Materials		\$56,900	
Material Burden @ 14.9%		8,478	
		Total Materials Incl. Burden	<u>65,378</u>
Subtotal			\$207,816
Gen. & Adm. Expense @ 7.8%			<u>16,210</u>
		Total Estimated Cost	\$224,026

Where does this
line fit?

S-225-BCJC-66010

Retrofit Two Units (2-B + 2-C + 2-D)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
R&D Overhead Pool:			
Salaried	1,730	5.87	10,155
Hourly	650	3.64	2,366
Total Labor			\$12,521
R&D Overhead @ 135%			16,903
Materials			\$1,200
Material Burden @ 14.9%			179
Total Materials Incl. Burden			<u>1,379</u>
Subtotal			\$30,803
Gen. & Adm. Expense @ 7.8%			<u>2,402</u>
Total Estimated Cost			\$33,205

S-225-CCJC-66010

Fabrication - Mechanical - Optical - Optical Coating

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	1,533	5.37	8,232
Hourly	9,244	3.47	32,076
Total Labor			\$ 40,308
R&D Overhead @ 135%			54,416
Materials			\$52,850
Material Burden @ 14.9%			7,874
Total Materials Incl. Burden			<u>60,724</u>
Subtotal			\$155,448
Gen. & Adm. Expense @ 7.8%			<u>12,125</u>
Total Estimated Cost			\$167,573

S-225-DCJC-66010

Thermal

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	168	5.87	986
Hourly	16	3.64	58
Total Labor			\$1,044
R&D Overhead @ 135%			<u>1,409</u>
Subtotal			\$2,453
Gen. & Adm. Expense @ 7.8%			<u>191</u>
Total Estimated Cost			\$2,644

S-225-ECJC-66010

Electrical Fabrication and Assembly

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	7, 352	5.37	39, 480
Hourly	7, 760	3.47	26, 927
total Labor			\$ 66, 407
R&D Overhead @ 135%			89, 649
Materials			\$48, 600
Material Burden @ 14. 9%			7, 241
Total Materials Incl. Burden			<u>55, 841</u>
Subtotal			\$211, 897
Gen. & Adm. Expense @ 7. 8%			<u>16, 528</u>
Total Estimated Cost			\$228, 425

S-225-FCJC-66010

Mechanical and Optical Alignment and Check Out

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	1,880	5.87	11,036
Hourly	1,290	3.64	4,696
Total Labor			\$15,732
R&D Overhead @ 135%			<u>21,238</u>
Subtotal			\$36,970
Gen. & Adm. Expense @ 7.8%			<u>2,884</u>
Total Estimated Cost			\$39,854

S-225-GCJC-66010

System Alignment and Test

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	2, 140	5.87	12, 567
Hourly	2, 140	3.64	7, 747
Total Labor			\$20, 314
R&D Overhead @ 135%			<u>27, 424</u>
Subtotal			\$47, 738
Gen. & Adm. Expense @ 7.8%			<u>3, 724</u>
Total Estimated Cost			\$51, 462

S-225-HCJC-66010

Quality Control and Inspection

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	440	5.20	229
Hourly	2,200	3.67	8,074
Total Labor			\$ 8,303
R&D Overhead @ 135%			<u>11,209</u>
Subtotal			\$19,512
Gen. & Adm. Expense @ 7.8%			<u>1,522</u>
Total Estimated Cost			\$21,034

S-22

5-I

CJC-66010

Detector Arrays - Power Supplies and Coolers - Pitch Encoder -
Servo Amplifiers - Toger and Tack

Materials	\$219,750
Material Burden @ 14.9%	32,743
Total Materials Incl. Burden	\$252,493
Gen. & Adm. Expense @ 7.8%	<u>19,694</u>
Total Estimated Cost	\$272,187

S-22

5-J

CJC-66010

Program Management

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	5, 300	5.87	31, 111
Hourly	1, 008	3.64	3, 669
Total Labor			\$34, 780
R&D Overhead @ 135%			<u>46, 953</u>
Subtotal			\$81, 733
Gen. & Adm. Expense @ 7.8%			<u>6, 375</u>
Total Estimated Cost			\$88, 108

S-22

5-K

CJC-66010

10% Spares Excluding Microelectronics and Detectors Which Have
Spares

Materials	\$22,000
Material Burden @ 14.9%	3,278
Total Materials Incl. Burden	\$25,278
Gen. & Adm. Expense @ 7.8%	<u>1,972</u>
Total Estimated Cost	\$27,250

S-225-1CJC-66010

Update Drawings and Manuals

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	760	5.87	4,461
Hourly	1,400	3.64	5,096
Total Labor			\$ 9,557
R&D overhead @ 135%			<u>12,902</u>
Subtotal			\$22,459
Gen. & Adm. Expense @ 7.8%			<u>1,752</u>
Total Estimated Cost			\$24,211

W80C6.CJC-66010

SUMMARY - Redesign, Test, Retrofit Two Units; Acceptance Test Two Units; Environmental Test One Unit; Produce Ten Units (Combined with S-22)

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	29,392	5.69	167,096
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Hourly	66,279	3.34	221,133
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Total Labor	\$ 388,229
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R&D Overhead @ 135%	524,109
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Materials	\$421,744
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Material Burden @ 14.9%	62,840
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Total Materials Incl. Burden	<u>484,584</u>
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Subtotal	\$1,396,886
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Gen. & Adm. Expense @ 7.8%	<u>108,957</u>
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Total Estimated Cost	\$1,505,843
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10% 150 584
1,656.427

W80C6.CJC-66010

Production Only - Combined with S-22

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	22,357	5.63	125,838
Hourly	60,311	3.34	201,461
Total Labor			\$ 327,299
R&D Overhead @ 135%			441,854
Materials			\$323,607
Materials Burden @ 14.9%			48,217
Total Materials Incl. Burden			<u>371,824</u>
Subtotal			\$1,140,977
Gen. & Adm. Expense @ 7.8%			<u>88,996</u>
Total Estimated Cost			\$1,229,973
			<i>-110% 122.997 - 7352.970</i>

W80C6-ACJC-66010115

Develop, Test, and Produce 250 Flip Chip Amplifiers Plus 1100 for
10 Production Units (Combined with S-22)

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	6,161	5.84	35,980
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Hourly	19,119	2.93	56,019
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Total Labor	\$ 91,999
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R&D Overhead @ 135%	124,199
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Materials	\$113,670
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Materials Burden @ 14.9%	16,937
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Total Materials Incl. Burden	<u>130,607</u>
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Subtotal	\$346,805
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Gen. & Adm. Expense @ 7.8%	<u>27,051</u>
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Total Estimated Cost	\$373,856
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W80C6-A.1CJC-66010

Design, Test, and Set-Up (One Time Charge) (Split 50/50 with S-22)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	566	5.84	3,305
Hourly	962	2.93	2,819
Total Labor			\$ 6,124
R&D Overhead @ 135%			8,267
Materials			\$9,150
Materials Burden @ 14.9%			1,363
Total Materials Incl. Burden			<u>10,513</u>
Subtotal			\$24,904
Gen. & Adm. Expense @ 7.8%			<u>1,943</u>
Total Estimated Cost			\$26,847

W80C6-A-2.0CJC-66010

Manufacture 1,350 Flip Chip Amplifiers (10 Production Plus
Two Retrofit Units) (Combined with S-22)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>		<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	5, 595	5. 84	32, 675
Hourly	18, 157	2. 93	53, 200
Total Labor			\$85, 875
R&D Overhead @ 135%			115, 931
Materials			\$104, 520
Material Burden @ 14. 9%			15, 573
Total Materials Incl. Burden			<u>120, 093</u>
Subtotal			\$321, 899
Gen. & Adm. Expense @ 7. 8%			<u>25, 108</u>
Total Estimated Cost			\$347, 007

W80C6-A-2.1CJC-66010

Manufacture 1,100 Flip Chip Amplifiers (10 Production Units)
 (Combined with S-22)

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	4, 927	5. 84	28, 774
Hourly	16, 229	2. 93	47, 551
			Total Labor \$ 76, 325
			R&D Overhead @ 135% 103, 039

Materials	\$69, 665
Materials Burden @ 14. 9%	10, 380
	Total Materials Incl. Burden <u>80, 045</u>
	Subtotal \$259, 409
	Gen. & Adm. Expense @ 7. 8% <u>20, 234</u>
	Total Estimated Cost \$279, 643

How about
 1100?

W80C6-BCJC-66010

Retrofit Two Units (1-B, 1-C, 1-D, 1-E, 1-F, 1-G, 1-H, 1-I,
1-J, 1-K)

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	-\$-	-\$-

R&D Overhead Pool:

Salaried	5,801	5.87	34,052
Hourly	3,078	3.64	11,204
			Total Labor \$ 45,256
			R&D Overhead @ 135% 61,096
Materials			\$54,132
Materials Burden @ 14.9%			8,066
			Total Materials Incl. Burden <u>62,198</u>
Subtotal			\$168,550
Gen. & Adm. Expense @ 7.8%			<u>13,147</u>
Total Estimated Cost			\$181,697

W80C6-CCJC-66010

Manufacturing Costs (4-C, 4-D, 4-E, 4-F, 4-G) Ten Production Units

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	17,430	5.57	97,064
Hourly	44,082	3.49	153,910
Total Labor			\$250,974
R&D Overhead @ 135%			338,815
Materials			\$253,942
Material Burden @ 14.9%			37,837
Total Materials Incl. Burden			<u>291,779</u>
Subtotal			\$881,568
Gen. & Adm. Expense @ 7.8%			<u>68,762</u>
Total Estimated Cost			\$950,330

S-226.CJC-66010

Redesign, Test, Retrofit, Two Units; Acceptance Test Two Units;
 Environmental Test One Unit; Produce Ten Units (Combined with W80C)

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool

Salaried	24,624	5.59	137,651
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Hourly	35,613	2.87	102,381
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Total Labor	\$240,032
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R&D Overhead @ 135%	324,043
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Materials	\$405,030
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Material Burden @ 14.9%	60,349
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Total Materials Incl. Burden	<u>465,379</u>
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Subtotal	\$1,029,454
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Gen. & Adm. Expense @ 7.8%	<u>80,297</u>
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Total Estimated Cost	\$1,109,751
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10% 110975
1,220,726

S-226.CJC-66010

Production Only

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		-\$-	-\$-
<u>R&D Overhead Pool:</u>			
Salaried	22,000	5.56	122,276
Hourly	33,052	2.86	94,415
			\$ 216,691
			R&D Overhead @ 135% 292,533
Materials			\$377,513
Material Burden @ 14.9%			56,249
			Total Materials Incl. Burden <u>433,762</u>
Subtotal			\$ 942,986
Gen. & Adm. Expense @ 7.8%			<u>73,553</u>
Total Estimated Cost			\$1,016,539
			<u>101 653</u>
			<u>1,118,192</u>

S-226-ACJC-66010

SUMMARY - Develop, Test, and Produce 135 Flip Chip Amplifiers
 Plus 480 for 10 Production Units (Combined with W80C)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	3,321	5.84	19,394
Hourly	9,905	2.93	29,022
Total Labor			\$ 48,416
R&D Overhead @ 135%			65,362
Materials			\$60,630
Materials Burden @ 14.9%			9,034
Total Materials Incl. Burden			<u>69,664</u>
Subtotal			\$183,442
Gen. & Adm. Expense @ 7.8%			<u>14,308</u>
Total Estimated Cost			\$197,750

S-226-A-1CJC-66010

Design, Test, and Set-Up (One Time Charge) (Split 50/50 with W80C)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	566	5.84	3,305
Hourly	962	2.93	2,819
Total Labor			\$ 6,124
R&D Overhead @ 135%			8,267
Materials			\$9,150
Material Burden @ 14.9%			1,363
Total Material Incl. Burden			<u>10,513</u>
Subtotal			\$24,904
Gen. & Adm. Expense @ 7.8%			<u>1,943</u>
Total Estimated Cost			\$26,847

S-226-A-2.0CJC-66010

Manufacture 615 Flip Chip Amplifiers (10 Production plus 2 Retrofits)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		-\$-	-\$-
R&D Overhead Pool:			
Salaried	2,755	5.84	16,089
Hourly	8,943	2.93	26,203
			\$ 42,292
			R&D Overhead @ 135% 57,094
Materials			\$51,480
Material Burden @ 14.9%			7,671
			Total Materials Including Burden <u>59,151</u>
			Subtotal \$158,537
			Gen. & Adm. At 7.8% <u>12,366</u>
			Total Estimated Cost \$170,903

S-226-A-2.1CJC-66010

Manufacture 480 Flip Chip Amplifiers (10 Production Units)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	2,427	5.84	14,174
Hourly	7,994	2.93	23,422
Total Labor			\$ 37,596
R&D Overhead @ 135%			50,755
Materials			\$34,313
Material Burden @ 14.9%			5,113
Total Materials Incl. Burden			<u>39,426</u>
Subtotal			\$127,777
Gen. & Administrative @ 7.8%			<u>9,967</u>
Total Estimated Cost			\$137,744

S-226-BCJC-66010

Retrofit Two Units (2-B + 2-C + 2-D)

<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
	<u>-\$-</u>	<u>-\$-</u>

R&D Overhead Pool:

Salaried	1,730	5.87	10,155
Hourly	650	3.64	2,366
		Total Labor	\$12,521
		R&D Overhead @ 135%	16,903
Materials			\$1,200
Material Burden @ 14.9%			179
		Total Materials Incl. Burden	<u>1,379</u>
Subtotal			\$30,803
Gen. & Adm. Expense @ 7.8%			<u>2,402</u>
Total Estimated Cost			\$33,205

S-226-CCJC-66010

Manufacturing Costs (5-C, 5-D, 5-E, 5-F, 5-G, 5-H, 5-I, 5-J, 5-K,
 5-L0 Ten Production Units

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	19, 573	5.52	108, 102
Hourly	25, 058	2.83	70, 993
			\$179, 095
			R&D Overhead @ 135% 241, 778
 Materials			\$343, 200
Material Burden @ 14. 9%			51, 137
			Total Material Incl. Burden <u>394, 337</u>
 Subtotal			\$815, 210
Gen. & Adm. Expense @ 7. 8%			<u>63, 586</u>
 Total Estimated Cost			\$878, 796

7.

CJC-66010

SUMMARY - J218 Test Equipment - 4 Units

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		-\$-	-\$-
<u>R&D Overhead Pool:</u>			
Salaried	853	5.87	5,007
Hourly	1,584	3.64	5,766
Total Labor			\$ 10,773
R&D Overhead @ 135%			14,543
Materials			\$62,274
Materials Burden @ 14.9%			9,279
Total Materials Incl. Burden			<u>71,553</u>
Subtotal			\$ 96,869
Gen. & Adm. Expense @ 7.8%			<u>7,556</u>
Total Estimated Cost			\$104,425

7-ACJC-66010

Mobile Test Cart (Fully Instrumented)

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	597	5.87	3,504
Hourly	922	3.64	3,356
Total Labor			\$ 6,860
R&D Overhead @ 135%			9,261
Materials			\$39,567
Material Burden @ 14.9%			5,895
Total Materials Incl. Burden			<u>45,462</u>
Subtotal			\$61,583
Gen. & Adm. Expense @ 7.8%			<u>4,803</u>
Total Estimated Cost			\$66,386

7-BCJC-66010

Collimated Test Source

	<u>Hours</u>	<u>Rate</u>	<u>Amount</u>
		<u>-\$-</u>	<u>-\$-</u>
<u>R&D Overhead Pool:</u>			
Salaried	256	5.87	1,502
Hourly	662	3.64	2,410
Total Labor			\$ 3,912
R&D Overhead @ 135%			5,281
Materials			\$10,327
Material Burden @ 14.9%			1,539
Total Materials Incl. Burden			<u>11,866</u>
Subtotal			\$21,059
Gen. & Adm. Expense @ 7.8%			<u>1,642</u>
Total Estimated Cost			\$22,701

7-C

CJC-66010

Standard Test Equipment

Materials	\$12,380
Material Burden @ 14.9%	1,846
Total Materials Incl. Burden	\$14,226
Gen. & Adm. Expense @ 7.8%	<u>1,110</u>
Total Estimated Cost	\$15,336

No ??

Schedule For Completion of Existing Contract.

8/2/66

	7/30	8/6	8/13	8/20	8/27	9/3	9/10	9/17	9/24	10/1	10/8
1. final system checkout											
2. ship unit to vehicle											
3. prepare flight test plan											
4. install and checkout unit with vehicle											
5. flight testing											
6. test report											
7. return unit to AGC											
8. monthly reports											
9. final report											

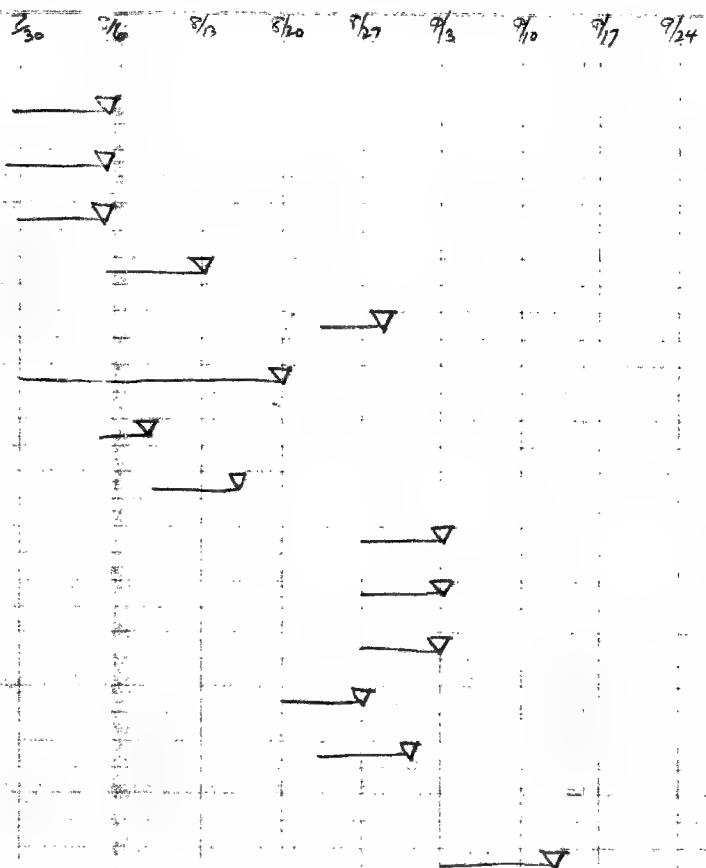
Schedule breakdown - final system checkout

8/2/66

Items

1. Detection capability - ambient
2. +16 Detection capability - cold and record raw preamp data
3. Optimize amp. decoupling changes
4. Modify and clean up amp. mother boards
5. Return array 4-7 from ECA
6. Design, fab, test amplifier display panel
7. Adjust servo field coverage + bar spacing
8. Clean up + repaint scanner
9. Check channel count threshold ext.
10. Check temp. sensing circuit
11. Final check sun sensor
- 12A. Check channel noise with test panel
- 12B. Check J218 with WED
13. Elapsed time meter (not required)

System tests:



8/10/66

W80C First & Second Unit Retrofit with Flip Chip Amplifiers.

Schedule - Production, W80C

7/21/66

	months →															
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

1. Manufacture W80C

V 8 10

2. Manufacture J218

V

3. Project control & system checkout

V 10

4. Documentation

a) manuals

V

b) J218 manual

V

c) drawings

V

d) monthly reports

V V V V V V V V V V V V V V V V

Item 3 costs: Project(SA) 160 160 160 160 160 160 160 160 160 160 160 160 160 160 160 160
 Clerical (PH) 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20
 Dept. 3824 (\$4) 160 160 160 160 160 160 160 160 160 160 160 160 160 160 160 160
 Tech. (HT) 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80
 Supervision (SH) 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24 24

10 units

$$\begin{aligned}
 SA & 2792 \times 16 = \$44709 \\
 PH & 520 \times 9.25 = 4810 \\
 & \hline
 & \$49510
 \end{aligned}$$

S-22 SCHEDULE for Completion

5-22 SCHEDULE

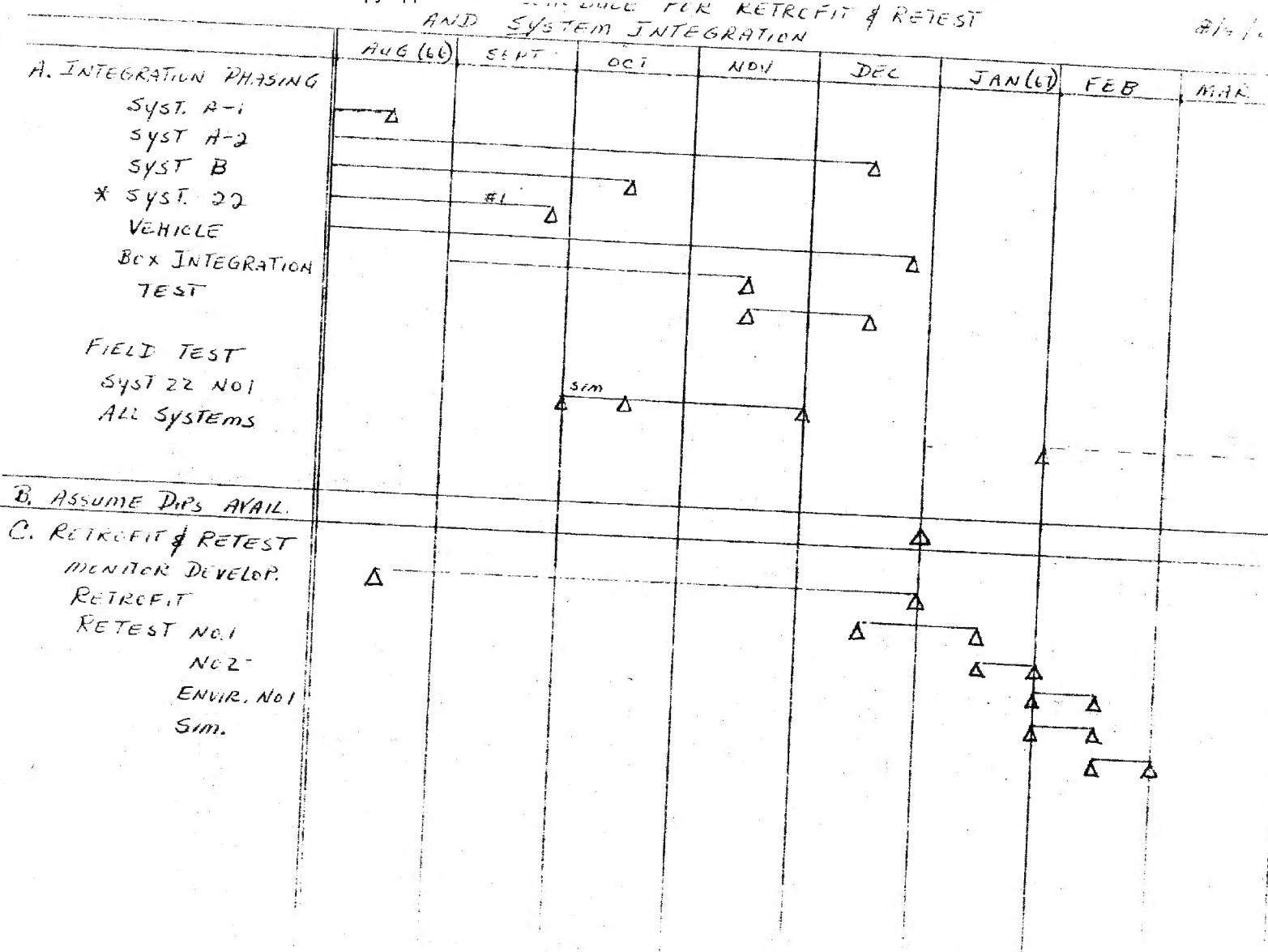
TE, DISEASE
PLATE, S. ACCEPT.
C. BOX INST.
WIDE 2.5 CABLE
WIRE C. COU 5D
PDS. TIME SCORE
MUSON 5000S
INST. 5000S
ROT. D. 5. BD
SYST. TEST
C. WIRE.

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110

AND SYSTEM INTEGRATION



REVISIONS TO STATEMENT OF WORK
W-80C RETROFIT PROGRAM

STAT STAT
The comments listed below represent changes and additions to the proposed "Statement of Work W-80C Retrofit Program," called enclosure (2) in [redacted] letter to [redacted] (Doc. #188-0) dated 19 January 1967.

STAT STAT
STAT STAT
During [redacted] visit to Aerojet General on 7 February 1967, the revisions to the statement of work were coordinated with [redacted] of Aerojet. The revisions were approved by [redacted] and he stated that [redacted] should include them in the final statement of work.

STAT STAT
The "signed off" specification for the W-80C should also be included as part of the statement of work.

A. Page 1, I, Introduction (line 4)

Add:

"... and maintainability, in accordance with the provisions of the document "Specification for Passive IR Warning Device (W-80C)" approved on 10 January 1967 by the contractor."

B. Page 2, II, Work Items, paragraph 1(b)

Change to Read:

b) "Manufacture sufficient for two (2) W-80C units plus operational spares in a minimum quantity of 10 modules.

C. Page 2, paragraph 2

Add:

d) Servo subsystem

Page 2

D. Page 3, paragraph 5

Change to Read:

" . . . thermoelectric coolers capable of assuring compliance with paragraph 3.1.7. and paragraph 3.5. of the document "Specification for Passive IR Warning Device (W-80C)." "

E. Page 3, paragraph 6

Add:

- d) Elevation scan
- e) Cryogenic subsystem

F. Page 4, paragraph 12

Add:

12. Software items (quantity in accordance with "Specification for Passive IR Warning Device (W-80C)". Appendix B) as follows:.

G. Page 4, Paragraph 12

In subparagraphs "e", "f", "g", "h", "i", and "k", delete the document quantities.

H. Page 5 (new paragraph)

Add:

13. Determination of Probability of Detection and Detection Range:
Probability of detection and determination of detection range shall be determined by testing of the W-80C at the customer's simulation facility. Parameters specified in paragraphs 3.2., 3.3., 3.4., 3.5., and 3.6.4. of the document "Specification for Passive IR Warning Device (W-80C)" shall be used.